CLAIMS

What is claimed is:

1.   In a decoder having one or more branch metric units for calculating branch metric values, a method for performing normalization comprising:

if a specified normalization condition is met, adding a normalization amount to a branch metric value at each of said branch metric units to produce a normalized branch metric value.

2.   The method as in claim 1 wherein said specified normalization condition is that a plurality of state metrics are above a threshold value.

3.   The method as in claim 1 further comprising adding said normalized branch metric value to a plurality of stored state metric values.

4.   The method as in claim 3 wherein said state metric values are stored in a plurality of accumulators.

5.   The method as in claim 1 wherein said branch metric calculations are Viterbi branch metric calculations.

6.   The method as in claim 3 further comprising:

if a second specified normalization condition is met, adding a second normalization amount to branch metric calculations performed by each said one or more branch metric units to produced a second normalized branch metric value.

1   7.   The method as in claim 6 wherein said second specified normalization

2   condition is that a plurality of state metrics are above a second threshold value.

1   8.   A method comprising:

2   monitoring a plurality of state metric values; and

3   subtracting a normalization amount from each of said state metric values

4   when each of said state metric values are above a first specified threshold.

1   9.   The method as in claim 8 wherein subtracting comprises:

2   subtracting said normalization amount from branch metric values

3   calculated by one or more branch metric units to produce normalized branch

4   metric values, said normalized branch metric values combined with said state

5   metric values.

1   10. The method as in claim 8 further comprising:

2   subtracting a second normalization amount from each of said state metric

3   values when each of said state metric values are above a second specified

4   threshold.

1   11. The method as in claim 8 wherein said state metric values are stored

2   in a plurality of accumulators.

1   12. The method as in claim 8 wherein said state metric values are Viterbi

2   state metric values.

1   13. An apparatus comprising:

2   normalization logic to generate a normalization signal responsive to a

3   specified normalization condition; and

4   a branch metric unit to subtract a normalization amount from a branch

5   metric value responsive to said normalization signal.

1   14. The apparatus as in claim 13 wherein said specified normalization

2   condition is that a plurality of state metric values are above a threshold value.

1   15. The apparatus as in claim 13 further comprising:

2   an adder to add said normalized branch metric value to a plurality of

3   stored state metric values.

1   16. The apparatus as in claim 15 further comprising:

2   a plurality of accumulators for storing said state metric values.

1   17. The apparatus as in claim 13 wherein said branch metric value is a

2   Viterbi branch metric value.

1   18. The apparatus as in claim 13 wherein said normalization logic

2   generates a second normalization signal responsive to a second specified

3   normalization condition, and wherein said branch metric unit subtracts a second

4   normalization amount from said branch metric value responsive to said second

5   normalization signal.

1   19. The apparatus as in claim 18 wherein said second specified

2   normalization condition is that a plurality of state metric values are above a

3   second threshold value.

1   20. A machine-readable medium having code stored thereon which

2   defines an integrated circuit (IC), said IC comprising:

3   normalization logic to generate a normalization signal responsive to a

4   specified normalization condition; and

5   a branch metric unit to subtract a normalization amount from a branch

6   metric value responsive to said normalization signal.

1   21. The machine-readable medium as in claim 20 wherein said specified

2   normalization condition is that a plurality of state metric values are above a

3   threshold value.

1   22. The machine-readable medium as in claim 20 wherein said IC further

2   comprises:

3   an adder to add said normalized branch metric value to a plurality of

4   stored state metric values.

1   23. The machine-readable medium as in claim 22 wherein said IC further

2   comprises:

3   a plurality of accumulators for storing said state metric values.

1   24. The machine-readable medium as in claim 20 wherein said branch

2   metric value is a Viterbi branch metric value.

1   25. The machine-readable medium as in claim 20 wherein said

2   normalization logic generates a second normalization signal responsive to a

3   second specified normalization condition, and wherein said branch metric unit

4   subtracts a second normalization amount from said branch metric value

5   responsive to said second normalization signal.

1   26. The machine-readable medium as in claim 18 wherein said second

2   specified normalization condition is that a plurality of state metric values are

3   above a second threshold value.